



## TO STUDY AND SIMULATION OF DUAL BAND H SHAPED RECTANGULAR MICROSTRIP PATCH ANTENNA USING VARIOUS PARAMETER

Saima Tabassum Mansoori <sup>1</sup>, Prof. Rahul Koshta <sup>2</sup>

<sup>1</sup> M.Tech (Student), Microwave Engineering, Department of Electronics & Communication Engineering, S.R.I.T. Jabalpur (M.P.), India

<sup>2</sup> Professor, Department of Electronics & Communication Engineering, S.R.I.T. Jabalpur (M.P.), India

### Abstract:

*The substrate which is the first step in designing a patch antenna. Teflon (dielectric constant = 1.33 and height = 3.6 mm) are used as subs for the purpose of designing of Dual Band H Shaped Rectangular Microstrip Patch Antenna. The dimension of patch, ground plane, feed line width, inset notch etc. the design have important effects on the impedance matching.*

**Keywords:** Simulation, Substrate Height, S- Parameter.

**Cite This Article:** Saima Tabassum Mansoori, and Prof. Rahul Koshta. (2017). "TO STUDY AND SIMULATION OF DUAL BAND H SHAPED RECTANGULAR MICROSTRIP PATCH ANTENNA USING VARIOUS PARAMETER." *International Journal of Engineering Technologies and Management Research*, 4(10), 119-122. DOI: 10.5281/zenodo.1051020.

## 1. Introduction

Microstrip Patch Antenna is simulated using various parameters with dielectric constant as Teflon. Varying these dimensions thus helps to analyze the antenna characteristics over the range of frequencies. The microstrip antenna is fabricated with low cost. The performance of the antenna are depends on the substrate material and parameters.

## 2. Results and Discussion

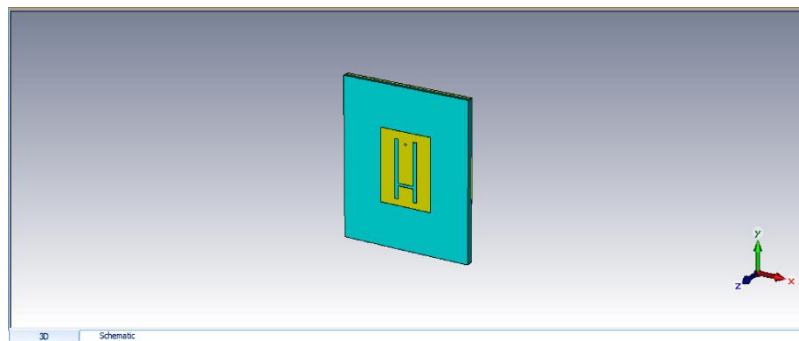


Figure 1: Analysis

### 2.1. Substrate height (H) = 3.6mm

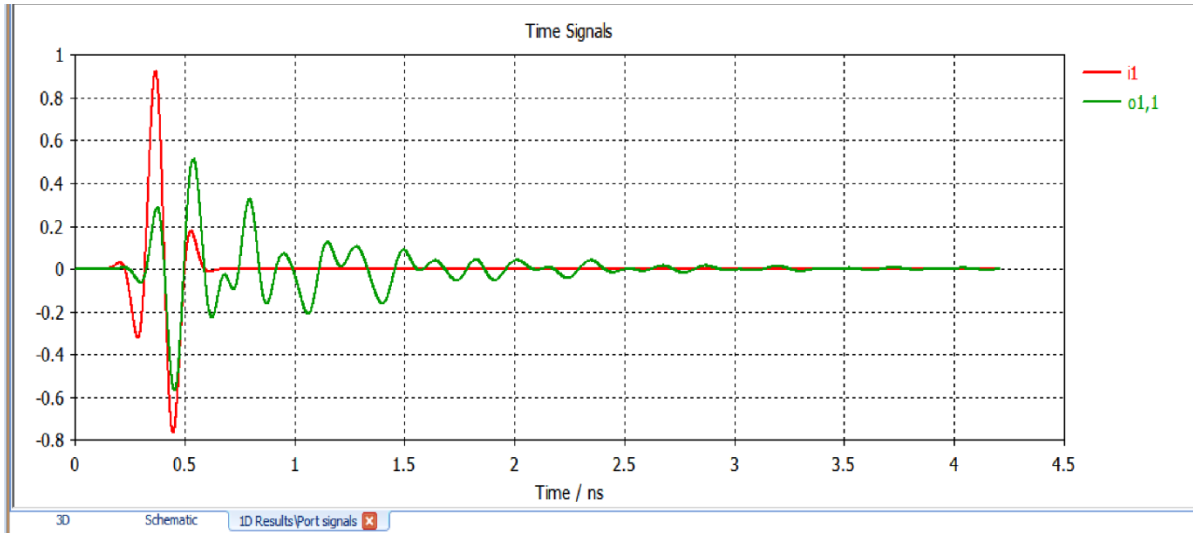


Figure 2: Time Signals, Substrate height (H) is 3.6mm

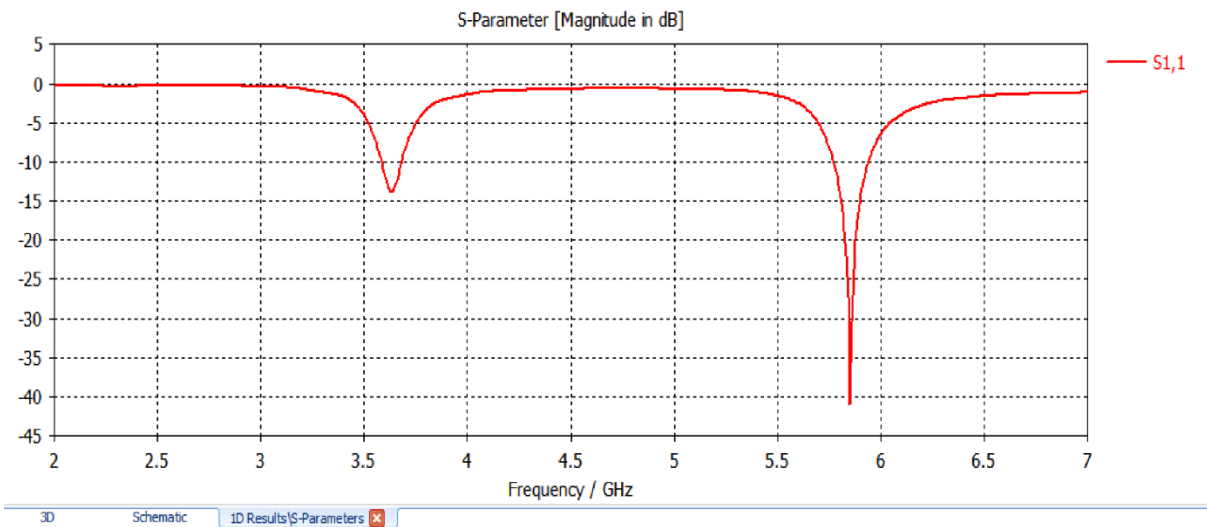


Figure 3: S-Parameter, Substrate height (H) is 3.6mm

The antenna has the return loss of -14 dB at the 3.655 GHz and -41 dB at 5.851 GHz. By using of Substrate height (H) = 3.6 mm.

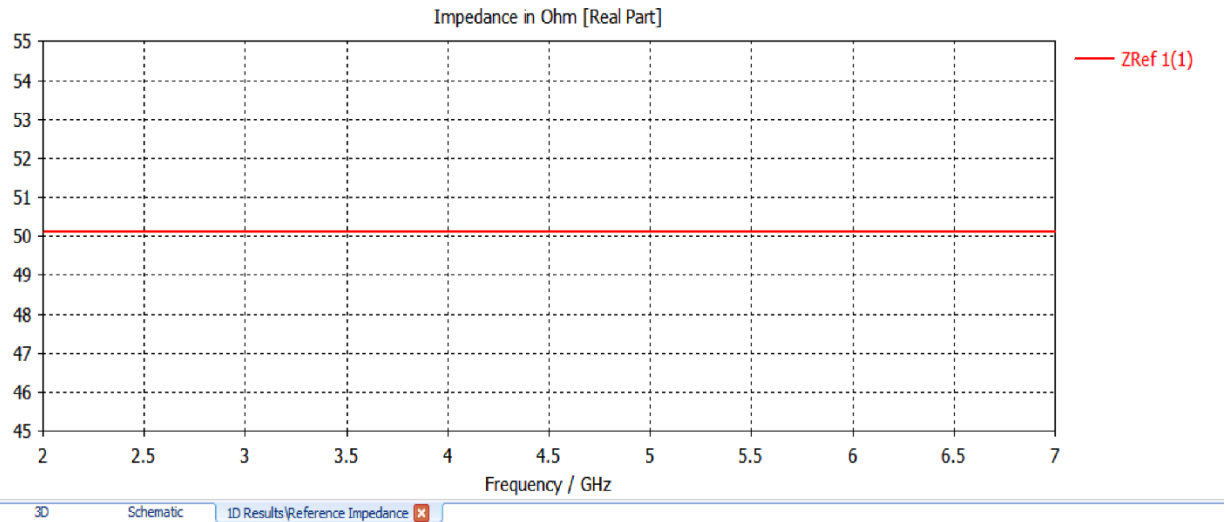


Figure 4: Impedance in Ohm, Substrate height (H) is 3.6mm

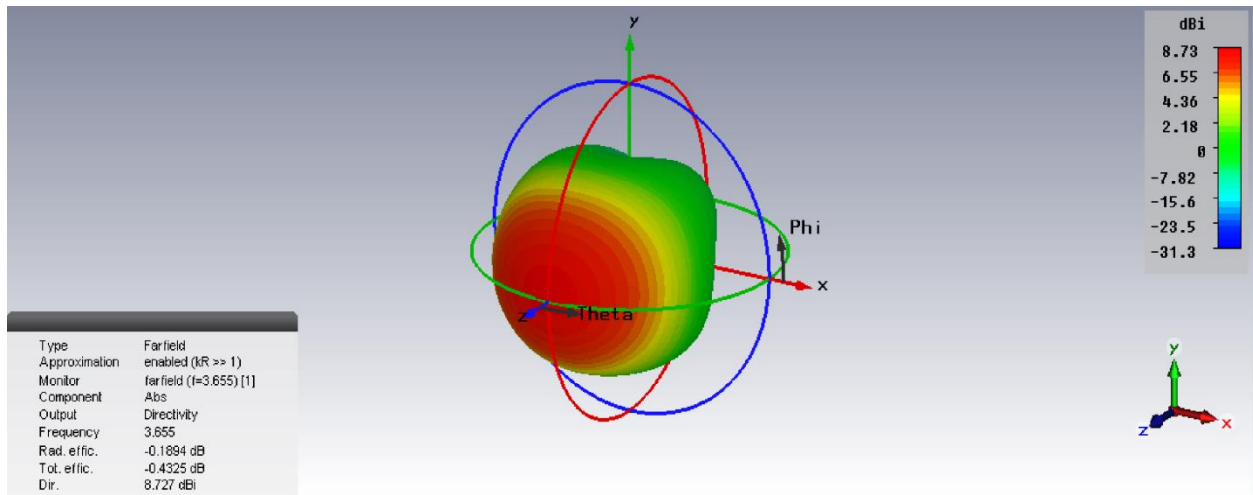


Figure 5: Farfields (f= 3.655 GHz), Substrate height (H) are 3.6mm

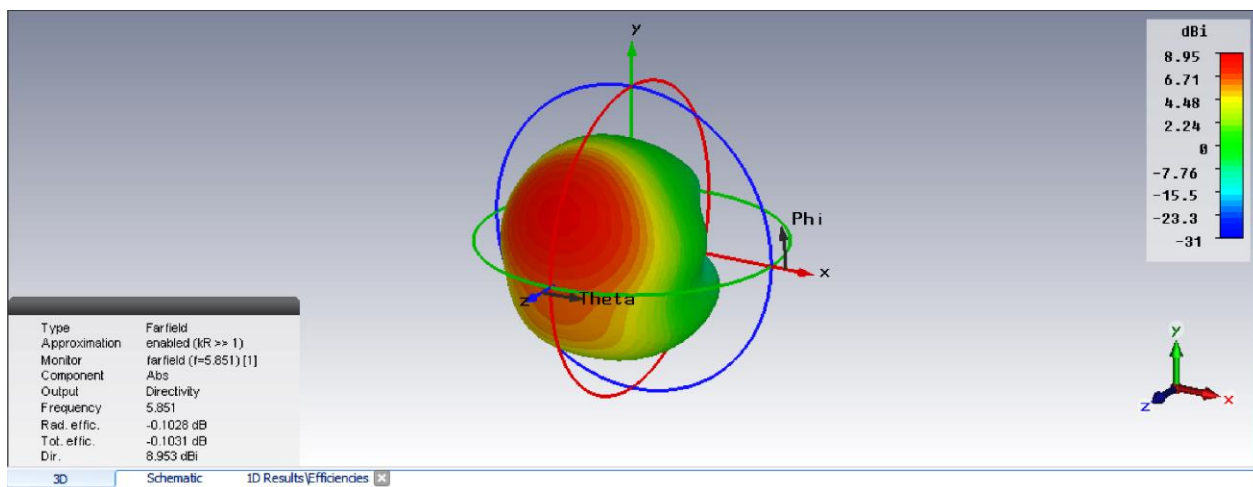


Figure 6: Farfields (f = 5.851 GHz), Substrate height (H) is 3.6mm

### 3. Conclusion

The characteristics of dual-band H-slot microstrip patch antenna are analysed through different parametric studies using CST software. The antennas have achieved good impedance, stable radiation patterns. The antenna has the return loss of -14 dB at the 3.655 GHz and -41 dB at 5.851 GHz. By using of H = 3.6 mm. The simulated result of designed antenna shows good performance and in this type antenna used as various applications such as satellite.

### References

- [1] A. Batra, "Design of multiband OFDM system for realistic UWB channel environments," IEEE Trans. Microwave Theory and Techniques, vol. 52, pp. 2123–2138, Sep. 2004.
- [2] A. Batra, "Multiband OFDM physical layer proposal for IEEE 802.15 task group 3a," July 2003.
- [3] L. H. Weng, An Overview on Defected Ground Structure, Progress In Electromagnetics Research 173–189, 2008
- [4] Lo, T.K. Microstrip antennas of high permittivity for personal communication, 253-256, 1997.
- [5] N. Ojaroudi, "Omni-Directional/Multi-Resonance Monopole Antenna for Microwave Imaging Systems". 2012 IEEE.